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Standard WFLHD Method of Test for

Determining Moisture Content in Asphalt Paving Mixtures by the Oven Method

1. SCOPE

1.1 This test method covers the determination of moisture content by drying a sample of the asphalt paving mixture in an oven at 149 ±14° C.

1.2 This standard may involve hazardous materials, operations, and equipment. This standard does not purport to address all of the safety problems associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices.

2. REFERENCED DOCUMENTS

2.1 *AASHTO Standards:*

T 168 Sampling Bituminous Paving Mixtures
T 248 Reducing Field Samples of Aggregates to Testing Size
M 231 Balances Used in the Testing of Materials

3. SUMMARY OF TEST METHOD

3.1 A sample of hot-mix paving material is dried in a forced air ventilated oven at 149 ±14° C. The container in which the sample is dryed is of sufficient size to allow the sample to be evenly distributed in a manner that will allow completion of the test in the required time. The moisture content is calculated by differences from the initial and ending mass of the mixture sample. The moisture content is expressed as a percent of the initial mass of the mixture.

4. APPARATUS

4.1 *Balance*, meeting the requirements of M 231 for the class of general purpose balance required for the principal sample mass of the sample being tested.

4.2 *Forced Air, Ventilated Oven*, capable of maintaining the temperature surrounding the sample at 149 ±14° C.

4.3 *Sample Container*, not affected by heat, and of sufficient size to contain a test sample of at least 1,000 grams without danger of spilling.

5. SAMPLING

5.1 The test sample shall be the end result of quartering a larger sample taken in accordance with AASHTO T 168 (AASHTO T 248 may be used as a guide to quartering).

5.2 The size of the test sample shall be a minimum of 500 grams.

6. PROCEDURE

6.1 Determine and record the mass of the sample container to the nearest 0.1 gram.

6.2 Place the test sample in the sample container and determine and record the total mass of the sample container and the test sample, to the nearest 0.1 gram. Calculate the initial weight of the test sample by subtracting the mass of the sample container from total weight of the sample container and the test sample.

6.3 Dry the test sample to a constant mass in the sample container (NOTE 1). Cool the sample container and test sample to room temperature. Determine and record the total mass of the sample container and test sample to the nearest 0.1 gram. Do not attempt to remove the test sample from the sample container for the purposes of weighing. Calculate the dry weight of the test sample by subtracting the mass of the sample container from the total weight of the sample container and the test sample determined in this step.

NOTE 1. Constant mass shall be defined as the mass at which further drying at 149 ±14° C does not alter the mass by more than 0.1 percent. Samples shall be initially dried 2 hours at 149 ±14° C and then weighed at half-hour intervals.

7. CALCULATION

7.1 Calculate the percent moisture in the mix as follows (round and report the value to the nearest 0.01 percent):

$$Percent\ moisture = \frac{W_i - W_d}{M_i} \times 100$$

where:

W_i = weight, initial

W_d = weight, dry

M_i = mix weight, initial (total initial weight minus sample container weight)

8. PRECAUTIONS

8.1 The rate of drying will be affected by the moisture conditions and the number of samples in the oven at any given time. Placing wet samples in the oven with nearly dry samples could affect the drying process.